

U.S. Department of Agriculture, Agricultural Research Service

Systematic Botany and Mycology Laboratory - Invasive Fungi Fact Sheets

***Peronospora radii* - Downy mildew of marguerite daisy**

In 2004 *Peronospora radii* occurred on greenhouse-grown plants of marguerite or Paris daisy (*Argyranthemum frutescens*) and other *Argyranthemum* x hybrids (= *Chrysanthemum*) in the eastern U.S. and on plants planted outside in CA. The fungus causes a blight of shoots and foliage resulting in stunting and attacks flowers.

***Peronospora radii* De Bary**

On leaves, stems and flowers, causing blackening and decay. Conidiophores erect, hyaline, 280-650 µm tall, trunk 120-450 x 8-18 µm, base 25 µm wide, width remaining uniform from base to apex, not expanding, at apex dichotomously branching 4-6 times, ultimate branchlets 1-3 at tip of each branch, long-conical to almost cylindric, up to 20 µm long when terminal, 5-12 µm when lateral, apex truncate, 1.5-2.0 µm wide. Conidia obovoidal to broadly ellipsoidal or ellipsoidal, (24-)30-35(-42) x (18-)20-23(-32) µm, broadest part median or slightly supramedian, pale brownish, apex rounded, wall 0.5 µm thick, smooth to finely verruculose; pedicel 1-2 x 1.5-2 µm or only slightly protruding. Oogonia not seen but, if present, in florets, yellowish, globose to irregular, 38-58 µm diam, wall 1-2 µm thick. Oospores golden-yellowish, globose, 24-34 µm diam, wall smooth 1-4 µm thick. (Description partially based on Constantinescu, 1989).

Hosts: Hosts: Primarily on members of the Anthemidae in the Asteraceae. Mostly recently on cultivated *Argyranthemum frutescens* (= *Chrysanthemum frutescens*) 'Crème' and 'Vanilla Butterfly', both Proven Winner patented varieties.

Distribution: Distribution: *Peronospora radii* was identified from several greenhouse-grown plants of *A. frutescens* and also affected plants grown in coastal CA (Koike et al, 2004). This fungus is reported fairly commonly throughout Europe including England (1961) and Yugoslavia (1968) and is also known from north Africa, China, Israel (Ben Ze'ev et al, 1987), and Mexico. The report from Chihuahua, Mexico is based on an intercepted specimen on *Artemisia mexicana* (estafiate) verified by O. Constantinescu (BPI 790565).

Peronospora radii is distinguished from other downy mildews on plants in the Asteraceae by the pale brownish conidia and uniform branch width. *Peronospora radii* could also be confused with *Plasmopara halstedii*. However, *P. halstedii* occurs more commonly on sunflower (*Helianthus annuus*) and other members of the Heliantheae (Asteraceae). In addition, *P. halstedii* has sporangiophores, rather than conidiophores, that branch at right angles and are pointed at the apices with sporangia, rather than conidia, that are 18-30 x 14-20 µm, smaller than the conidia of *Peronospora radii*.

These photographs by Ethel Dutky (Univ. MD), Margery Daughtrey (Cornell Univ.) and Rob Wick (Univ. MA) were made from plants grown in greenhouses in the eastern U.S. cultivated from stock brought from Costa Rica.

References:

Constantinescu, O. 1989. *Peronospora* complex on Compositae. Sydowia 41: 79-107

Suggested citation: Rossman, A.Y.. 14 December 2004. Invasive Fungi. *Peronospora radii* - Downy mildew of marguerite daisy. Systematic Botany & Mycology Laboratory, ARS, USDA. Retrieved April 21, 2006, from <http://nt.ars-grin.gov/sbmlweb/OnlineResources/FungiOnline.cfm> .

[Use this link to revisit SBML website](#)



Photograph by Maria Tobiasz



Photograph by Maria Tobiasz



Photograph by Maria Tobiasz



Photograph by Maria Tobiasz



